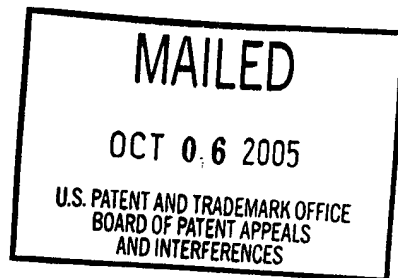


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte PETER CHAIKOWSKY¹



Appeal No. 2005-2033
Application No. 09/524,076

ON BRIEF

Before McQUADE, NASE, and BAHR, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 to 11, which are all of the claims pending in this application.

We REVERSE.

¹ The spelling of the inventor's last name in the electronic record of this application is incorrect. The appellant and the examiner should take the necessary steps to ensure correction thereof.

BACKGROUND

The appellant's invention relates generally to miter saws (specification, p. 1). A copy of the dependent claims under appeal is set forth in the appendix to the appellant's brief. Claim 4, the only independent claim on appeal, reads as follows:

A miter saw comprising:
a base assembly;
a fence attached to the base assembly for supporting a workpiece, the fence having a fence plane;
a rotatable table rotatably connected to the base assembly, the table having a table plane for supporting the workpiece;
a saw assembly including a motor and a blade driven by the motor, the blade having a radius and a blade center; and
a pivot arm pivotally attached to the table and pivotally supporting the saw assembly about a first axis substantially parallel to the table plane, allowing a user to plunge the blade below the table plane;
wherein distance between the first axis and the table plane is about 0.472 times the radius, distance between the first axis and the fence plane is about 1.45 times the radius, and distance between the first axis and the blade center is about 1.882 times the radius.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Shiotani et al. (Shiotani)
Vögele

5,063,802
DE 197 06 408 A1²

Nov. 12, 1991
Aug. 20, 1998

² In determining the teachings of Vögele, we will rely on the translations of record provided by the USPTO and the appellant. The translation provided by the appellant is attached as Appendix B to the brief. The translation provided by the USPTO is dated May 2001.

Claims 1 to 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Vögele.

Claims 1, 2 and 4 to 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shiotani in view of Vögele.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the answer (mailed December 14, 2004) for the examiner's complete reasoning in support of the rejections, and to the brief (filed September 27, 2004) and reply brief (filed February 9, 2005) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, to the declaration of Peter Chaikowsky under 37 CFR 1.132 (the Chaikowsky declaration),³ and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

³ A copy of the declaration is attached as Appendix C to the brief.

The obviousness rejection based on Vögele alone

We will not sustain the rejection of claims 1 to 11 under 35 U.S.C. § 103 as being unpatentable over Vögele.

Teachings of Vögele

Vögele discloses a crosscut and miter saw. As shown in Figure 1, the saw includes a saw table 1 formed from outer parts 2, 3 and rotary table 4 between them. The outer parts 2, 3 and the rotary table 4 together form a horizontal supporting surface 5 for the workpiece being cut. Side stops 6, 7 are releasably fastened to the outer parts 2, 3, for example by means of screws. A saw slot 9 is provided in the rotary table 4. A saw head 10 is mounted on the rotary table 4 such as to be pivotable about a horizontal axis B. The saw head 10 can be pivoted relative to the rotary table about a further vertical axis C in order to create oblique miter cuts. The saw head includes a saw blade 12 driven about a rotation axis D by means of an electric motor 14. The saw head 10 is provided with a handle 15 for pivoting the saw head about the axes B and C. For the end position of the saw blade 12 pivoted about the axis B into the saw slot 9 there is a bottom end stop such that the saw blade 12 cannot be pivoted further into the saw slot 9 by means of the handle 15.

Figure 2 shows the crosscut and miter saw with an attached spacing device. The spacing device permits the saw to cut a workpiece which is substantially wider but thinner than the workpieces which can be cut by the saw without the spacing device (i.e., Figure 1). The spacing device includes outer support plates 16, 17 and a center support plate 18. The outer support plate 16 is adapted to the outer part 2 of the saw table 1. The outer support plate 17 is adapted to the outer part 3 of the saw table 1. The center support plate 18 is adapted to the rotary table 4 of the saw table 1. The height or thickness of the support plates 16 to 18 is the same and is about 6% to 20% of the diameter of the saw blade 12, for example 30 mm. The support plates 16 to 18 form a smooth supporting surface 5' for a workpiece.

Various workpieces W1, W2, W3 which are to be sawn through are shown in their cross section in Figures 3 to 5. The workpiece W1 has an almost square cross section. In comparison, the workpiece W2 has a smaller thickness D2 and a larger width B2. The workpiece W3 has a markedly smaller thickness D3 than the workpiece W2 and substantially larger width B3 than the workpiece W2. Saw blade 12 has a diameter of about 254 mm (10 inches). The workpieces W1, W2 can be sawn through with the crosscut and miter saw in the set-up according to Figure 1. The workpiece W3 can be sawn through with the crosscut and miter saw in the set-up according to Figure 2.

The workpiece W1 has, for example, a cross section of about 100 mm (3.94 inches) in width B1 and about 90 mm (3.54 inches) in thickness D1. The workpiece W2 has a width B2, for example, about 140 mm (5.51 inches) and a thickness D2 about 60 mm (2.36 inches). In use, the workpieces W1, W2 are placed against the side stops 6, 7 on the supporting surface 5 of the saw table and the saw head 10 is pivoted downward in the direction of arrow S about the axis B. When the workpiece W1 has been sawn through (see Figure 3), the saw blade 12 has covered its bottom corner points W1.1 and W1.2. The bottom end stop has not yet been reached in the process. When the workpiece W2 has been sawn through (see Figure 4), the saw blade 12 is pivoted further in the direction of the bottom end stop without reaching the latter. In the process, the saw blade 12 penetrates further into the saw slot 9 than is the case during the sawing according to Figure 3.

The workpiece W3, whose width B3 is about 210 mm to 220 mm (8.27 to 8.66 inches) and whose thickness is, for example, about 15 mm to 20 mm (0.59 to 0.79 inches), obviously cannot be sawn through with the miter saw in the set-up according to Figure 1. So that a workpiece like the workpiece W3, which is substantially wider but thinner than the workpieces W1, W2, can also be sawn through with the crosscut/miter saw, the spacing device discussed above is provided.

In transforming the crosscut and miter saw from the Figure 1 arrangement to the Figure 2 arrangement, the side stops 6, 7 are removed from the saw table 1 and the support plates 16 to 18, are attached to the outer parts 2, 3 and the rotary table 4 of the saw table 1. The removed side stops 6, 7 are then attached to the support plates 16, 17 at a distance (see Figure 5) with respect to their original position (see Figures 3 and 4). The side stops in this position are designated by 6', 7' in Figure 5. The side stop 7' is additionally displaced to the right by the amount e in order to prevent the motor coming down on it.

Ascertainment of differences

After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Based on our analysis and review of Vögele and claim 4, it is our opinion that the differences are as follows: (1) the distance between the first axis and the table plane being about 0.472 times the radius; (2) the distance between the first axis and the fence plane being about 1.45 times the radius; and (3) the distance between the first axis and the blade center being about 1.882 times the radius.

Examiner's Determination of obviousness

With regard to these differences, the examiner determined (answer, pp. 6 and 8-9) that:

In light of DE '408 [Vögele] and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art and further because such a modification would have involved a mere change in the size of a component and changes in size are generally recognized as being within the level of ordinary skill in the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the miter saw of DE '408 with the specific dimensions stated above in order to allow for larger boards to be placed on and cut by the miter saw.

...

In the alternative, even if it is argued that the modified device of DE '408 lacks the specific distance of a) at least 1.1 times the radius of the blade; b) at least between about 1.236 to about 1.252 times the radius', c) at least 1.244 times the radius; d) between about 0.60 to 0.775 times the chord length of the blade', and/or about 0.757 times the chord length, it should be noted that the modified device of DE '408 discloses that it is old and well known in the art that there is a need to cut various sized workpieces with a single miter saw as well as to modified existing miter saws in order to cut various sized workpieces and in light of the embodiment shown in Figure 4 of DE '408 and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art and further because such a modification would have involved a mere change in the size of a component and changes in size are generally recognized as being within the level of ordinary skill in the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the miter saw of the modified device of DE '408 with the specific distance between the fence and the endpoint in front of the fence as one of the specific distances mentioned above in order to support a

workpiece relative to the blade such that larger boards can be cut by smaller blades.

Evidence of nonobviousness

The specification teaches (p. 1) that:

Typically, the cutting capacity of a miter saw is limited because of its blade size and/or geometry. For example, most currently available ten-inch non-sliding miter saws can cut nominal 4" by 4" and 2" by 6" wood beams. However, these miter saws cannot cut some of the larger boards, which are about six inches wide, true size. Accordingly, if a user wants to cut a board that is larger than the cutting capacity of the miter saw, the user would need to purchase a larger miter saw, with a larger blade, higher weight, higher price, etc. Alternatively, the user could use a radial arm saw or sliding miter saw. But these are also more expensive, etc.

The specification (pp. 4-6) discloses that in accordance with the appellant's invention, an improved miter saw can be employed that enables the saw to cut larger boards, which are about six inches wide, true size, in addition to the nominal 4" by 4" and 2" by 6" wood beams. The appellant's miter saw accomplishes this result by having (1) the distance (ABP in Figure 4) between the pivot axis A of the saw assembly 30 and the plane 11P of the base assembly 11 being about 0.472 times the radius R of blade 14 (in a ten-inch miter saw having a blade of about 5 inches radius, the distance ABP is about 2.36 inches); the distance (AFP in Figure 4) between the axis A and the plane 20P of the fence assembly 20 being about 1.45 times the radius R (in a ten-inch

miter saw, the distance AFP is about 7.25 inches); and (3) the distance (ABC in Figure 4) between axis A and the center BC of the blade 14 being about 1.882 times the radius R (in a ten-inch miter saw, the distance ABC is about 9.41 inches). The appellant's specification states (pp. 5-6) that:

With such arrangement, a ten-inch miter saw will be able to cut through nominal 4" by 4" and 2" by 6" wood beams, like most currently available ten-inch non-sliding miter saws. In addition, a ten-inch miter saw having such arrangement will be able to cut through boards that is 6 inches wide (true size) at 0° miter angle, and/or 5.25 inches wide at 31.62° miter angle, unlike any available ten-inch non-sliding miter saws.

The Chaikowsky declaration provides in paragraph 12 that:

Having the dimensions called for in Claim 4 is critical because a miter saw with such dimensions can cut certain desired workpiece with a smaller blade that were [sic, was] not previously achievable. For example, with such arrangement, a ten-inch miter saw can cut both a 6.5" by ¾" workpiece and a dimensional 4" by 4" workpiece without removing the fence. By comparison, DE '408 discloses a ten-inch miter saw that, while it certainly can cut a 6.5" by ¾" workpiece as shown in Figure 5, it cannot cut a dimensional 4" by 4" workpiece without changing the position of the fence. Such step is not necessary in the ten-inch miter saw according to Claim 4.

Our determination

In our view, when all the evidence and arguments are considered, the evidence of nonobviousness substantially outweighs the evidence of obviousness. A prima facie case of obviousness is rebuttable by proof that the claimed invention possesses

unexpectedly advantageous or superior properties. In re Papesch, 315 F.2d 381, 386-87, 137 USPQ 43, 47-48 (CCPA 1963). See also In re Payne, 606 F.2d 303, 316, 203 USPQ 245, 256, (CCPA 1979). In this instance, to the extent that the examiner has established a prima facie case of obviousness,⁴ it has been overcome by the evidence of nonobviousness before us in this appeal. Specifically, the evidence of nonobviousness clearly establishes that the claimed invention possesses unexpectedly advantageous or superior properties from that of the prior art. Namely, the ability to cut larger boards (e.g., boards which are about six inches wide, true size). Thus, when weighing all the evidence before us in this appeal it is our opinion that it would have **not** have been obvious at the time the invention was made to a person having ordinary skill in the art to have modified Vögele to have (1) the distance between the pivot axis and the table plane being about 0.472 times the radius of the saw blade; (2) the distance between the pivot axis and the fence plane being about 1.45 times the radius of the saw blade; and (3) the distance between the pivot axis and the center of the saw blade being about 1.882 times the radius of the saw blade.

⁴ In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to have arrived at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

For the reasons set forth above, the decision of the examiner to reject claim 4, and claims 1 to 3 and 5 to 11 dependent thereon, under 35 U.S.C. § 103 as being unpatentable over Vögele is reversed.

The obviousness rejection based on Vögele and Shiotani

We will not sustain the rejection of claims 1, 2 and 4 to 6 under 35 U.S.C. § 103 as being unpatentable over Shiotani in view of Vögele.

We have reviewed the teachings of Shiotani and Vögele but find nothing therein that would have made it obvious at the time the invention was made to a person having ordinary skill in the art to have modified Shiotani so that (1) the distance between the pivot axis and the table plane being about 0.472 times the radius of the saw blade; (2) the distance between the pivot axis and the fence plane being about 1.45 times the radius of the saw blade; and (3) the distance between the pivot axis and the center of the saw blade being about 1.882 times the radius of the saw blade.


For the reasons set forth above, the decision of the examiner to reject claims 1, 2 and 4 to 6 under 35 U.S.C. § 103 as being unpatentable over Shiotani in view of Vögele is reversed.


CONCLUSION

To summarize, the decision of the examiner to reject claims 1 to 11 under 35 U.S.C. § 103 as being unpatentable over Vögele is reversed and the decision of the examiner to reject claims 1, 2 and 4 to 6 under 35 U.S.C. § 103 as being unpatentable over Shiotani in view of Vögele is reversed.

REVERSED


JOHN P. McQUADE
Administrative Patent Judge


JEFFREY V. NASE
Administrative Patent Judge


JENNIFER D. BAHR
Administrative Patent Judge

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